

# PATENT SPECIFICATION



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## PROVISIONAL SPECIFICATION.

### Improvements in and relating to the Construction of Walls, Ceilings, Partitions, and the like.

I, GEORGE CARPENTER, of 22, Ditton Road, Surbiton, Surrey, British, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to an improved means of constructing walls, ceilings, partitions, and the like by means of studs or joists and slabs of any suitable material such as terra-cotta, concrete composed of  
10 portland cement, aluminous cement, gypsum plaster and the like, together with suitable filler or aggregate, which may be reinforced in any known manner; boards of felt, fiber, gypsum, pulp, sugar cane, peat, cork, or like materials and/or combinations of same.

According to this invention the studs or joists are formed into L, T, H, U, Z. or like sections with one or more bonding  
20 members, consisting of perforated or expanded sheet or strip metal of suitable strength, prepared to receive cement, plaster, glue, bitumen, or like adhesive or cementing medium, so as effectively to fasten and  
25 bond the slabs, or boards, to the studs or joists. These bonding members may be backed by plain or corrugated paper, felt, or like material, to ensure against loss of cementing medium, improve the bond, and/or seal the metal against moisture or  
30 other conditions that affect same.

In the manufacture of the stud or joist sections the perforated or expanded bonding members are moulded into one or more  
35 members of the section, together with steel bars, perforated or expanded strip or sections, or welded or otherwise built-up members, forming the main reinforcement, the whole being bonded together  
40 with cement concrete, gypsum plaster, or like materials so as to afford stability to the completed structure and protection against fire.

Studs or joists may be provided with  
45 cleats, nailing blocks, or brackets, and/or holes for bolts or screws to facilitate bracing and/or attachment to floors, ceilings, walls, door frames, window frames, mouldings and the like. Also with cast-in clips, screws, or like fastenings for holding slabs  
50 or boards in position.

[Price 1/-]

Design of stud or joist sections would provide for the construction of solid thin walls, ceilings, or the like;—such as may be formed by using a single slab, affixed  
55 to studs, which may be plastered or otherwise finished on one or both sides;—as well as for walls designed to have single cavity, or series of cavities, which may be filled with insulating, sound deadening, or like materials.

Studs for exposed corners, door recesses, and in cases where maximum stability is required with a minimum total thickness  
60 of wall, may be formed with one or more faces to be exposed in concrete, recessed and arranged so that the finishing slabs, or plaster, cement, or like material applied to same, finished flush with stud and formed a continuous surface, ready for  
70 decoration.

Although the usual method of construction would be by erecting the studs or joists and affixing thereto previously  
75 manufactured slabs, or boards, to provide the finished surface, or base to which the finished surface can be applied; the slabs or boards may be wholly or partially attached prior to erection, or the studs or joists may be cast or moulded into the  
80 slab during its manufacture for one or both sides, and thus be formed into units of a completed wall, ceiling or partition, ready for erection, and requiring only the filling of joints to complete same. These  
85 joints may be so arranged to be made on a separate stud or joist, or to one already affixed to the adjoining unit.

Such type of stud or joist and slab construction would be equally applicable to  
90 the lightest type of duct construction, wall furring or partition; compound design;—such as would be used for sound-proof walls or for insulation against temperature change;—or for heavy load-bearing walls having weatherproof facing, or  
95 bonded to exterior facing of brickwork, stonework or other material.

Dated this 5th day of January, 1932.

GEORGE CARPENTER.

price 75p

## COMPLETE SPECIFICATION.

Improvements in and relating to the Construction of Walls,  
Ceilings, Partitions, and the like.

I, GEORGE CARPENTER, of 22, Ditton Road, Surbiton, Surrey, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the construction of walls, ceilings and the like, and particularly to means for securing building slabs to supporting studs or joists, said means comprising the use of a cementing medium to attach the slabs to bonding members of flat or corrugated, and perforated or expanded metal strips which are attached to, or anchored in the wall studs or floor joists.

In carrying out my invention metal strip bonding members, consisting of perforated or expanded sheet metal which may be flat, corrugated or otherwise formed, are provided to receive cement, plaster, glue, bitumen or like adhesive or cementing medium, and, when the studs or joists are of wood, are fixed at suitable centres to these members by nails, staples, screws, or in like manner, so as to effectively fasten and bond the slabs to the studs or joists to form the wall or ceiling surface, or the base to receive same. These bonding members may be backed by plain or corrugated paper, felt, sheet metal or like material to ensure against loss of cementing medium, improve the bond, and/or seal the metal against moisture or other conditions that affect same. Various embodiments of the invention are shewn in the accompanying drawings.

In the preparation of, or manufacture of stud or joist sections of concrete or like materials, bonding members *a* are partly moulded or embedded into one or more members of the stud or joist section as shewn in Fig. 1 of the accompanying drawings and form the main reinforcement of same, or may form part of the reinforcement in combination with steel bars *c* or other known reinforcement. The backing of the bonding members is shewn at *b*. The projecting parts of the bonding members *a* are bent to lie flat against the surface of the joist or stud.

The studs or joists, when of concrete or like construction, may also be provided with cleats, nailing blocks, as at *d*, Fig. 1, or other known means of attachment

to facilitate bracing of the studs or joists, and/or rigidly fixing of same to adjacent construction, and for reception of door frames, window frames, and the like; also with cast-in clips *e*, screws or like fastenings for additionally holding the slabs or boards, *s*, in position.

The design of stud or joist would provide for the construction of solid thin walls, ceilings and the like such as may be formed by using a single slab, *s*, affixed to studs and plastered on one or both sides as at *P*, Fig. 2, as well as for walls designed to have a single cavity or series of cavities, which may be filled with granulated cork, slag wool, asbestos fibre or like materials as insulation against temperature changes, or for sound-deadening, as Fig. 3.

Concrete studs for exposed corners, Fig. 4, door recesses, and in cases where maximum stability is required with a minimum total thickness of wall, may be formed with one or more faces, *f*, recessed where necessary, *g*, and having bonding members *a* embedded in the concrete, with backing *b* and located so that the finishing slabs *s*, plaster *P*, cement or like material finish flush with stud where required and form a continuous surface, ready for decoration.

A method of arranging performed units comprising the slabs and the studs is shewn at Fig. 5. Slabs *s*, usually three to four feet wide and up to approximately twelve feet in height, being cemented to bonding members *a* which are attached to or built into studs *j*. One slab at each end of a unit projects beyond the stud *j* as shewn at *h* and is adapted to be connected by cementing medium to the exposed bonding member *l* of the adjacent stud of the next unit. Thus by cementing the projecting slabs to the exposed bonding members of adjoining units the wall would be completed.

The invention would be equally applicable to the lightest type of ceiling, partition, sound-proof wall, wall insulated against temperature changes, or wall for heavy load carrying having weatherproof facing, or bonded to exterior facing of brickwork, stonework, or like material as in Fig. 6. Here studs *j* are shewn of concrete cast integral with panels *m* to constitute pre-cast units also of concrete hav-

- ing a weatherproof facing of tile *t* or like material. Bonding members *a* are provided to receive a slab of suitable insulating material, and also the slab forming interior finish, the whole forming a double cavity wall. By filling the space between adjacent panels with concrete, at *X*, a monolithic structure may be formed from pre-cast concrete and slab units.
- 10 Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—
- 15 (1) A ceiling or wall formed of slabs attached by a cementing medium to strip metal bonding members of flat or corrugated, and perforated or expanded metal form, which strips are attached to, or anchored in the wall studs or floor joists. 20
- (2). A ceiling or wall as claimed in claim 1, wherein the bonding members are backed by paper or like material.
- (3). A ceiling or wall as claimed in claim 1, wherein the bonding members also form part or the whole of the reinforcement of the studs or joists when the latter are of concrete or the like. 25
- (4). A wall as claimed in claims 1, 2 or 3, wherein the slabs are attached to both sides of the studs to form units, prior to the erection of the studs in position in the wall. 30
- (5) A method of ceiling or wall construction substantially as described with reference to the accompanying drawings. 35
- Dated the 7th day of January, 1933.  
GEORGE CARPENTER.

[This Drawing is a reproduction of the Original on a reduced scale.]

